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Geology

# FIELD TRIP GUIDE

## Eastern Kansas

## 1957

(From Kansas City to Manhattan,
Kansas via the Kansas Turnpike, US
Highway 40, and Kansas Highway 13.)

prepared for the
MISSOURI ASSOCIATION OF GEOLOGISTS

by the
STATE GEOLOGICAL SURVEY OF KANSAS,
UNIVERSITY OF KANSAS, LAWRENCE
Road log by
John M. Jewett and Daniel F. Merriam

## ROAD LOG

| Cumulative Mileage | Mileage | |
|---|---|---|
| | | Welcome to the Sunflower state; population: 1,905,299 (1950); area: 82,276 square miles; capital: Topeka. Enter Kansas Turnpike at 18th Street Interchange, Kansas City, Kansas. |
| 0.00 | 0.00 | Off ramp onto Turnpike. |
| 0.1 | 0.1 | Drum limestone (above) underlain by Cherryvale shale (Quivira shale and Westerville limestone members). |
| 0.3 | 0.2 | Drum and Cherryvale on right (north) and Kansas River valley on left. Base of Westerville limestone member not exposed. |
| 0.9 | 0.6 | Overpass. |
| 1.0 | 0.1 | Exit - West Kansas City. |
| 1.1 | 0.1 | Loess exposures on both sides of road. |
| 1.7 | 0.6 | Chanute shale overlain by Iola limestone. |
| 2.2 | 0.5 | Lane shale overlain by Wyandotte limestone (Frisbie to Argentine members). |
| 2.6 | 0.4 | View of Kansas River on left (south). |
| 2.8 | 0.2 | Iola limestone exposure. |
| 3.1 | 0.3 | Overpass. |
| 3.5 | 0.4 | Loess on both sides of road. Note slump. |
| 3.7 | 0.2 | Underpass - 61st Street, Kansas City. |
| 4.2 | 0.5 | Underpass - 65th Street, Kansas City. |
| 4.4 | 0.2 | Loess on both sides of road. |
| 4.75 | 0.35 | Underpass - Bridge 300 A. |
| 5.0 | 0.25 | Wyandotte limestone exposures. |

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| | | |
|---|---|---|
| 5.1 | 0.1 | Underpass - 72nd Street, Kansas City. |
| 5.5 | 0.4 | Toll station - Kansas City. |
| 5.9 | 0.4 | Overpass. |
| 6.8 | 0.9 | Underpass - 86th Street, Kansas City. Small outcrop of Farley limestone (Wyandotte) on right. |
| 7.7 | 0.9 | Bonner Springs shale - Plattsburg limestone (above) on both sides of road. |
| 7.9 | 0.2 | Overpass. |
| 8.0 | 0.1 | Bonner Springs - Plattsburg. |
| 8.2 | 0.2 | Farley (Wyandotte) - Bonner Springs - Plattsburg. |
| 8.25 | 0.05 | Farley (Wyandotte). |
| 8.4 | 0.15 | Overpass. |
| 8.9 | 0.5 | Bonner Springs - Plattsburg. |
| 9.9 | 1.0 | Underpass - 110th Street (K 107), Kansas City. |
| 10.6 | 0.7 | Stranger formation (Tonganoxie sandstone). |
| 10.9 | 0.3 | Overpass. |
| 11.3 | 0.4 | Tonganoxie sandstone. |
| 11.5 | 0.2 | Underpass - Riverview Road. |
| 12.1 | 0.6 | Exit - Bonner Springs and K 7. |
| 12.2 | 0.1 | Underpass - Bonner Springs Interchange. |
| 12.5 | 0.3 | Underpass - K 7. |
| 13.0 | 0.5 | Overpass. |
| 13.4 | 0.4 | Top of Stanton limestone. |
| 13.9 | 0.5 | Bonner Springs shale. |
| 14.0 | 0.1 | Underpass - 142nd Street, Kansas City. |
| 14.4 | 0.4 | Overpass over Santa Fe Railroad. |
| 14.55 | 0.15 | Overpass. |
| 14.8 | 0.25 | Underpass - Kansas Avenue. |
| 14.9 | 0.1 | Bonner Springs and Plattsburg limestone. |
| 15.3 | 0.4 | Stanton formation, all members exposed. |
| 15.6 | 0.3 | Tonganoxie sandstone. |
| 16.1 | 0.5 | Underpass - De Soto Road. |
| 17.1 | 1.0 | Underpass - Bridge 289. |
| 18.1 | 1.0 | Underpass - Bridge 282. |
| 19.1 | 1.0 | Underpass - Bridge 281. |
| 19.9 | 0.8 | Underpass - Bridge 279. |
| 20.4 | 0.5 | Stranger Creek Bridge. Note wide valley and flood plain. |
| 21.4 | 1.0 | Stanton limestone exposures on both sides of road. |
| 22.3 | 0.9 | Underpass - Bridge 277. |
| 22.9 | 0.6 | Sand and silt filled channel in Stranger formation. |
| 23.25 | 0.35 | Haskell limestone member (Stranger formation) on right (poor exposure). |
| 23.4 | 0.15 | Underpass. |
| 23.5 | 0.1 | Stranger formation. |
| 24.5 | 1.0 | Underpass - Eudora Road. |
| 24.7 | 0.2 | Tonganoxie sandstone. |
| 25.6 | 0.9 | Bridge. |
| 26.5 | 0.9 | Tonganoxie sandstone. |

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|---|---|---|
| 26.95 | 0.45 | Underpass. |
| 27.0 | 0.05 | Lawrence Service area - water supply from well in Tonganoxie sandstone. |
| 27.8 | 0.8 | Underpass - Bridge 272. |
| 29.2 | 1.4 | Stranger formation exposures. |
| 29.7 | 0.5 | View of Lawrence and Kansas River valley. |
| 29.9 | 0.2 | Underpass - K 32. |
| 30.2 | 0.3 | Bridge. |
| 30.5 | 0.3 | Overpass - Union Pacific Railroad. |
| 30.8 | 0.3 | Bridge. Oread limestone scarp ahead. Note meander scars on terrace. |
| 31.5 | 0.7 | Overpass - Westvaco Chemical Company, gravel and sand pit to left. |
| 31.9 | 0.4 | Overpass. Airport to right. |
| 32.5 | 0.6 | Overpass. |
| 32.7 | 0.2 | Exit - East Lawrence. Lawrence is the home of the University of Kansas and Haskell Indian Institute. The State Geological Survey is located on the University Campus in Lindley Hall (Mineral Resources Building). Visitors are always welcome. |
| 32.95 | 0.25 | Overpass - US 40 and US 24. |
| 33.1 | 0.15 | Bridge over Kansas River. |
| 33.7 | 0.6 | Overpass. |
| 33.8 | 0.1 | Cut in low terrace on right. |
| 33.9 | 0.1 | Underpass - Michigan Street, Lawrence. |
| 33.95 | 0.05 | Exit - West Lawrence. |
| 34.3 | 0.35 | Underpass - West Lawrence Interchange. |
| 34.45 | 0.15 | Underpass - Country Club Road. |
| 34.9 | 0.45 | Road on terrace. Oread limestone scarp to left and ahead. |
| 35.5 | 0.6 | Underpass - Lake View Alternate Road. |
| 36.5 | 1.0 | Bridge over Baldwin Creek. |
| 37.2 | 0.7 | Complete Oread limestone exposure from the Toronto (and upper Lawrence shale) to Kereford limestone. |
| 37.5 | 0.3 | Underpass - Harrison Well Road. Lecompton scarp ahead. |
| 38.0 | 0.5 | Plattsmouth limestone and underlying Heebner shale members of the Oread limestone on both sides of road. |
| 39.3 | 1.3 | Lecompton limestone exposure (Spring Branch to King Hill members). |
| 39.55 | 0.25 | Underpass - Kanwaka Road - Biel limestone member of the Lecompton exposed. |
| 39.85 | 0.3 | Lecompton (Biel down to Spring Branch and coal bed in underlying Stull shale). |
| 40.2 | 0.35 | Lecompton complete (Spring Branch to Avoka members). |
| 40.5 | 0.3 | Lecompton limestone exposure on both sides. Deer Creek limestone ahead. |
| 41.1 | 0.6 | Tecumseh shale and lower part of the Deer Creek limestone. |
| 41.6 | 0.5 | Overpass - Lecompton Road. |
| 42.2 | 0.6 | Deer Creek limestone (complete) and upper Tecumseh shale. |
| 42.55 | 0.35 | Overpass. |

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| 42.8 | 0.25 | Upper part of the Tecumseh and lower part of the Deer Creek. |
| 44.6 | 1.8 | Underpass - Lecompton Alternate Road. |
| 45.9 | 1.3 | Basal part of the Topeka limestone. |
| 46.1 | 0.2 | Underpass - Big Springs Road. |
| 46.6 | 0.5 | Overpass. |
| 46.7 | 0.1 | Top of Calhoun shale (note crossbedding), and basal Topeka limestone. |
| 47.5 | 0.8 | Basal Topeka limestone exposures on both sides of road. |
| 47.6 | 0.1 | Overpass - US 40. |
| 48.2 | 0.6 | Lower part of the Topeka limestone. |
| 48.6 | 0.4 | Underpass - Miliken Road. |
| 48.8 | 0.2 | Topeka limestone (Hartford - Curzon) on both sides of road. |
| 49.0 | 0.2 | View of the city of Topeka. |
| 49.8 | 0.8 | Ervine Creek limestone (above), Larsh - Burroak shale, and Rock Bluff limestone (members of the Deer Creek limestone). |
| 50.3 | 0.5 | Ervine Creek to Rock Bluff. |
| 50.55 | 0.25 | Calhoun shale and lower Topeka limestone (above). |
| 50.7 | 0.15 | Underpass - Earl Hall Road. |
| 51.1 | 0.4 | Deer Creek limestone (Rock Bluff to Ervine Creek). |
| 51.55 | 0.45 | Deer Creek limestone (Rock Bluff to Ervine Creek). |
| 51.7 | 0.15 | Calhoun shale. |
| 52.1 | 0.4 | Topeka limestone (Hartford limestone member). |
| 52.3 | 0.2 | Underpass - Tecumseh Road. |
| 52.9 | 0.6 | Topeka service area entrance. |
| 53.25 | 0.35 | Topeka limestone (Hartford to Dubois limestone well exposed). |
| 53.8 | 0.55 | Underpass - Croco Road. |
| 54.2 | 0.4 | Exit - East Topeka. |
| 54.4 | 0.2 | Underpass - East Topeka Interchange. Exposure of basal Topeka limestone. |
| 54.9 | 0.5 | Underpass Wittenberg Road. |
| 55.6 | 0.7 | Underpass - 29th Street. |
| 55.7 | 0.1 | Basal Topeka limestone and upper Calhoun shale. |
| 55.9 | 0.2 | Lower Topeka limestone. |
| 56.4 | 0.5 | Overpass - California Street, Topeka. |
| 57.0 | 0.6 | Overpass. |
| 57.5 | 0.5 | Sandstone in Severy shale. |
| 57.7 | 0.2 | Overpass. |
| 58.05 | 0.35 | Howard limestone - Nodaway coal and overlying Church limestone. |
| 58.4 | 0.35 | Nodaway coal and Church limestone. |
| 58.5 | 0.1 | Overpass - Santa Fe, Missouri Pacific Railroads, and US 75. |
| 58.8 | 0.3 | Exit - South Topeka. Slow - keep right - enter ramp. |
| 59.05 | 0.25 | Toll Station - South Topeka. |
| 59.2 | 0.15 | Over cloverleaf - straight ahead - overpass over US 75. |
| 59.6 | 0.4 | Enter US 75. You are now going north toward downtown Topeka. |
| 60.6 | 1.0 | Highway Commission Building on right. |
| 60.9 | 0.3 | Stoplight at 29th Street. |
| 61.35 | 0.45 | Kansas National Guard Armory. |
| 61.95 | 0.6 | Stoplight. Turn left (west) on 21st Street. |

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| 62.05 | 0.1 | Bridge across Shunganunga Creek. Kansas Free Fairgrounds on right. |
| 62.5 | 0.45 | Stop (4 way) - 21st and Buchanannan Streets. |
| 62.7 | 0.2 | Washburn University Campus on right. |
| 63.7 | 1.0 | Stop - 21st and Oakley Streets. Winters Veterans Administration Hospital on left. |
| 64.2 | 0.5 | Stop 21st and Gage Streets. Turn right on Gage (north). |
| 64.7 | 0.5 | Stoplight at 17th and Gage Streets. Continue north on Gage. |
| 65.7 | 1.0 | Stop - (4 way) 10th and Gage Streets. Turn left (west) on 10th. Gage Park on right. |
| 65.9 | 0.2 | Gage Park zoo on right. |
| 67.7 | 1.8 | Turn right (north) on Wannamaker Road - Straight ahead for west on US 40 - use cloverleaf - curve right on ramp. |
| 68.1 | 0.4 | Enter US 40 and go under Interchange underpass. You are now heading west on US 40 which is a limited access highway. |
| 68.7 | 0.6 | Bridge. |
| 68.8 | 1.1 | Silver Lake shale overlain by Burlingame limestone*. |
| 70.8 | 1.0 | Overpass. |
| 71.1 | 0.3 | Exit - Auburn Road and overpass. |
| 71.4 | 0.3 | Auburn shale. |
| 72.05 | 0.65 | Emporia limestone (Reading limestone member). |
| 72.4 | 0.35 | Reading limestone overlying Auburn shale. |
| 72.8 | 0.4 | Bridge. |
| 73.0 | 0.2 | Auburn shale and overlying Emporia limestone. |
| 73.4 | 0.4 | Bridge. |
| 74.2 | 0.8 | Valencia Road. |
| 74.7 | 0.5 | Willard shale. |
| 75.05 | 0.35 | Tarkio limestone and Wamego shale (above) members of the Zeandale limestone and Willard shale (below). |
| 75.4 | 0.35 | Tarkio limestone outcrops both sides of road. |
| 75.7 | 0.3 | Tarkio underlain by Willard shale. |
| 76.0 | 0.3 | Upper part of the Emporia formation. |
| 76.1 | 0.1 | Emporia and Auburn on left. |
| 76.5 | 0.4 | Exit - Vassor Road. |
| 76.7 | 0.2 | Overpass. |
| 76.8 | 0.1 | Willard overlain by Tarkio. |
| 77.5 | 0.7 | Buffalo Mound ahead on skyline. |
| 78.0 | 0.5 | Exit - Willard - Dover Road. |
| 78.2 | 0.2 | Overpass. |
| 78.5 | 0.3 | Maple Hill limestone member of the Zeandale limestone. |
| 78.7 | 0.2 | Tarkio limestone. |
| 79.1 | 0.4 | Dover limestone (member of the Stotler limestone), on right. |
| 79.3 | 0.2 | Dover limestone underlain by Pillsbury shale. |

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*The Wabaunsee and Admire groups (upper Pennsylvanian and lower Permian) have been recently reclassified by Moore and Mudge (See A.A.P.G. Bull., vol. 40, no. 9, p. 2271-2278, 1956.).

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| 79.6 | 0.3 | Dover limestone on both sides of road. |
| 79.8 | 0.2 | Dover limestone outcrop on both sides of road. |
| 81.3 | 1.5 | Dry shale and Grandhaven limestone (members of Stotler limestone). |
| 81.9 | 0.6 | Dry shale and Grandhaven limestone. |
| 82.0 | 0.1 | Dover limestone on both sides of road. |
| 82.35 | 0.35 | Bridge. |
| 83.1 | 0.75 | Junction with K 30, continue west on US 40. |
| 83.3 | 0.2 | Bridge. |
| 83.7 | 0.4 | Brownville limestone (Wood Siding formation, Pennsylvanian) overlain by Towle shale (Onaga shale, Permian). |
| 84.95 | 1.25 | Falls City limestone overlain by West Branch shale (Janesville shale). Haxby (below). |
| 85.9 | 0.95 | Aspinwall limestone. |
| 86.2 | 0.3 | Vera Road. |
| 86.7 | 0.5 | Cut ahead is mostly in Hughes Creek shale with Long Creek limestone at very top of hill (members of the Foraker limestone). |
| 89.0 | 2.3 | Bridge. |
| 89.6 | 0.6 | Roadside Park. |
| 90.4 | 0.8 | Hughes Creek shale exposure with Long Creek limestone at top. |
| 90.6 | 0.2 | Hamlin shale overlain by Foraker limestone. |
| 90.85 | 0.25 | Bridge over Mill Creek. |
| 91.1 | 0.25 | Overpass - Rock Island Railroad. |
| 91.3 | 0.2 | Junction of K 138 and US 40. Continue ahead on US 40. |
| 91.75 | 0.45 | Bridge. |
| 92.0 | 0.25 | Chert gravel hills (buried Pleistocene valley) on right. |
| 93.95 | 1.95 | Bridge. |
| 94.15 | 0.2 | Junction of K 135 and US 40. Continue ahead on US 40. |
| 95.4 | 1.25 | Overpass - Rock Island Railroad. |
| 95.6 | 0.2 | Bridge. |
| 96.1 | 0.5 | Grenola limestone to Cottonwood limestone (lower member of Beattie limestone) exposures. |
| 96.45 | 0.35 | Cottonwood limestone. |
| 96.65 | 0.2 | Junction of K 99 and US 40. Continue ahead on US 40. Florena shale and Morrill limestone (members of the Beattie limestone). |
| 97.05 | 0.4 | Picnic table on left. |
| 97.5 | 0.45 | Bader limestone. |
| 98.0 | 0.5 | Threemile limestone (Wreford formation) and underlying Speiser shale. |
| 98.4 | 0.4 | Threemile - Havensville shale (Wreford formation) and underlying Speiser shale. |
| 98.6 | 0.2 | Funston limestone on left side of road. |
| 98.9 | 0.3 | Funston at top, Blue Rapid shale, Crouse limestone, and Easly Creek shale (below). |
| 99.2 | 0.3 | Crouse limestone on both sides of road. |
| 99.4 | 0.2 | Bader limestone. |
| 99.6 | 0.2 | Beattie limestone. |

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| 99.9 | 0.3 | Cottonwood limestone. |
| 100.4 | 0.5 | Bridge. |
| 102.15 | 1.75 | Riley County line. |
| 102.4 | 0.25 | Funston limestone on left. |
| 102.6 | 0.2 | Wreford limestone (Threemile member). |
| 103.0 | 0.4 | Schroyer limestone (Wreford formation). You now are in the Flint Hills, one of the most beautiful parts of Kansas. |
| 104.4 | 1.4 | "Reef" in Havensville shale above Threemile limestone (members of Wreford). |
| 105.0 | 0.6 | Bader limestone. |
| 105.7 | 0.7 | Eskridge shale. |
| 106.0 | 0.3 | Bridge. Neva limestone (Grenola limestone). |
| 106.3 | 0.3 | Roadside Park on left. |
| 107.1 | 0.8 | Eskridge shale overlain by the Beattie limestone. |
| 107.65 | 0.55 | Eskridge shale to Bader limestone. |
| 107.9 | 0.25 | Bridge. |
| 108.1 | 0.2 | Bader limestone. |
| 108.4 | 0.3 | Funston limestone, Speiser shale, and lower part of Wreford (in ascending order). |
| 108.55 | 0.15 | Havensville and Schroyer (Wreford formation). |
| 108.75 | 0.2 | Schroyer limestone (note chert). |
| 108.9 | 0.15 | Schroyer limestone. |
| 109.4 | 0.5 | Florence limestone (of the Barneston limestone) overlying Matfield shale. |
| 109.8 | 0.4 | Florence limestone. |
| 110.1 | 0.3 | Junction K 13 and US 40. Turn right (north) on K 13. |
| 110.2 | 0.1 | Quarry in Florence limestone on left. |
| 110.5 | 0.3 | Cut in Florence limestone. |
| 110.8 | 0.3 | Florence limestone. |
| 111.05 | 0.25 | Kinney limestone (member of the Matfield shale). |
| 111.3 | 0.25 | Schroyer limestone. |
| 111.65 | 0.35 | Threemile limestone and underlying Speiser shale. |
| 111.8 | 0.15 | Havensville and Schroyer. |
| 112.1 | 0.3 | Schroyer limestone. |
| 112.5 | 0.4 | Kinney limestone. |
| 113.15 | 0.65 | Schroyer limestone. |
| 115.4 | 2.25 | Funston limestone and lower beds exposed up to the Wreford. View of Kansas River Valley ahead. |
| 115.8 | 0.4 | Eiss limestone on left side of road. |
| 116.2 | 0.4 | Grenola limestone exposures on both sides of road. |
| 116.7 | 0.5 | Lower part of Grenola formation. |
| 117.6 | 0.9 | K - Hill on left (section from Foraker to Cottonwood). |
| 118.2 | 0.6 | Bridge over the Kansas River. |
| 118.3 | 0.1 | City limits of Manhattan. Home of Kansas State College. |
| 118.6 | 0.3 | Turn right (north) on K 13 and K 18. |
| 118.75 | 0.15 | Stoplight at Junction with US 24. Continue straight ahead (north). |

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| 119.7 | 0.95 | "Blumont" section on left Hughes Creek shale up to Cottonwood limestone. |
| 120.0 | 0.3 | Hughes Creek shale - Big Blue floodplain to right. |
| 120.5 | 0.5 | Hughes Creek shale. |
| 121.2 | 0.7 | Johnson shale and Red Eagle formation on left of road. |
| 122.8 | 1.6 | Grenola limestone on left - Cottonwood limestone on hill above. |
| 123.5 | 0.7 | **Tuttle Creek Dam on right.** |
| 123.7 | 0.2 | Bridge over Phiel Creek. |
| 123.8 | 0.1 | Leave K 13 continue straight ahead on secondary road. |
| 124.0 | 0.2 | Headquarters of Tuttle Creek Dam on left. |

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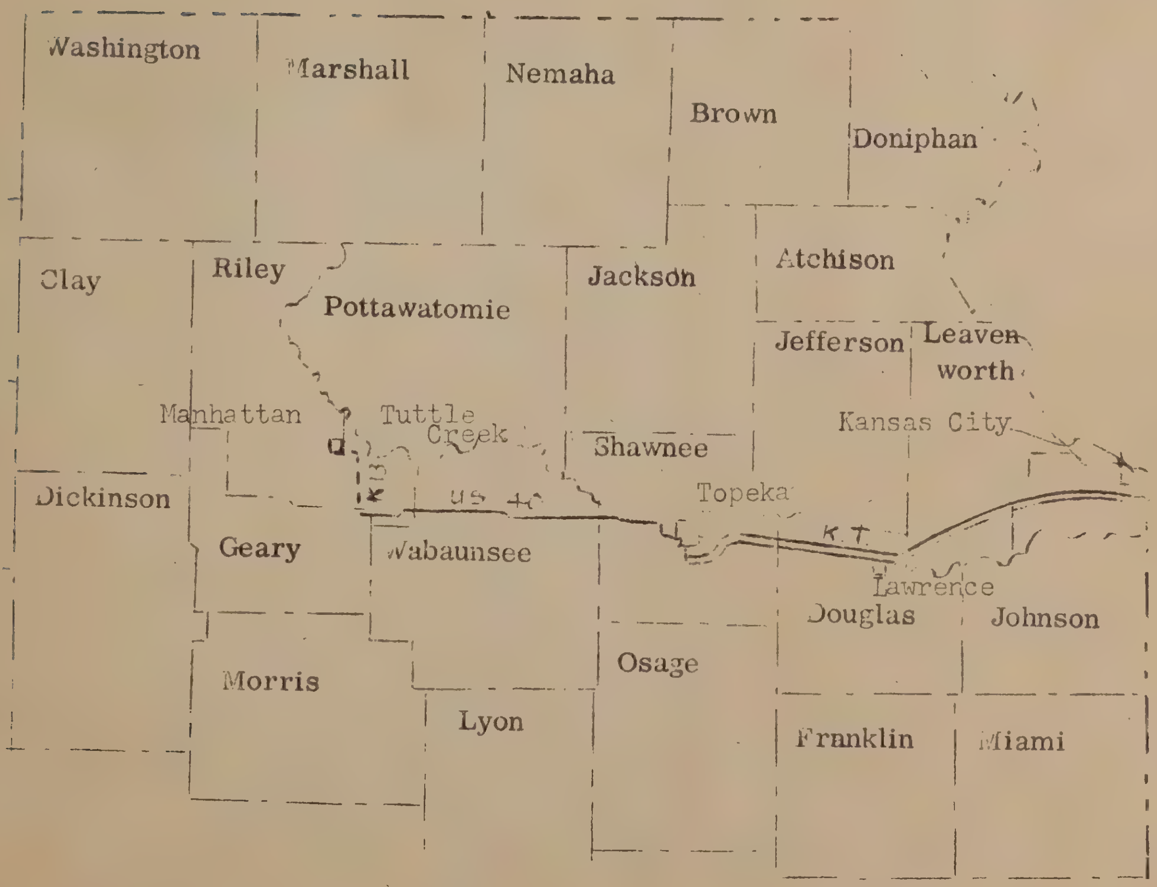
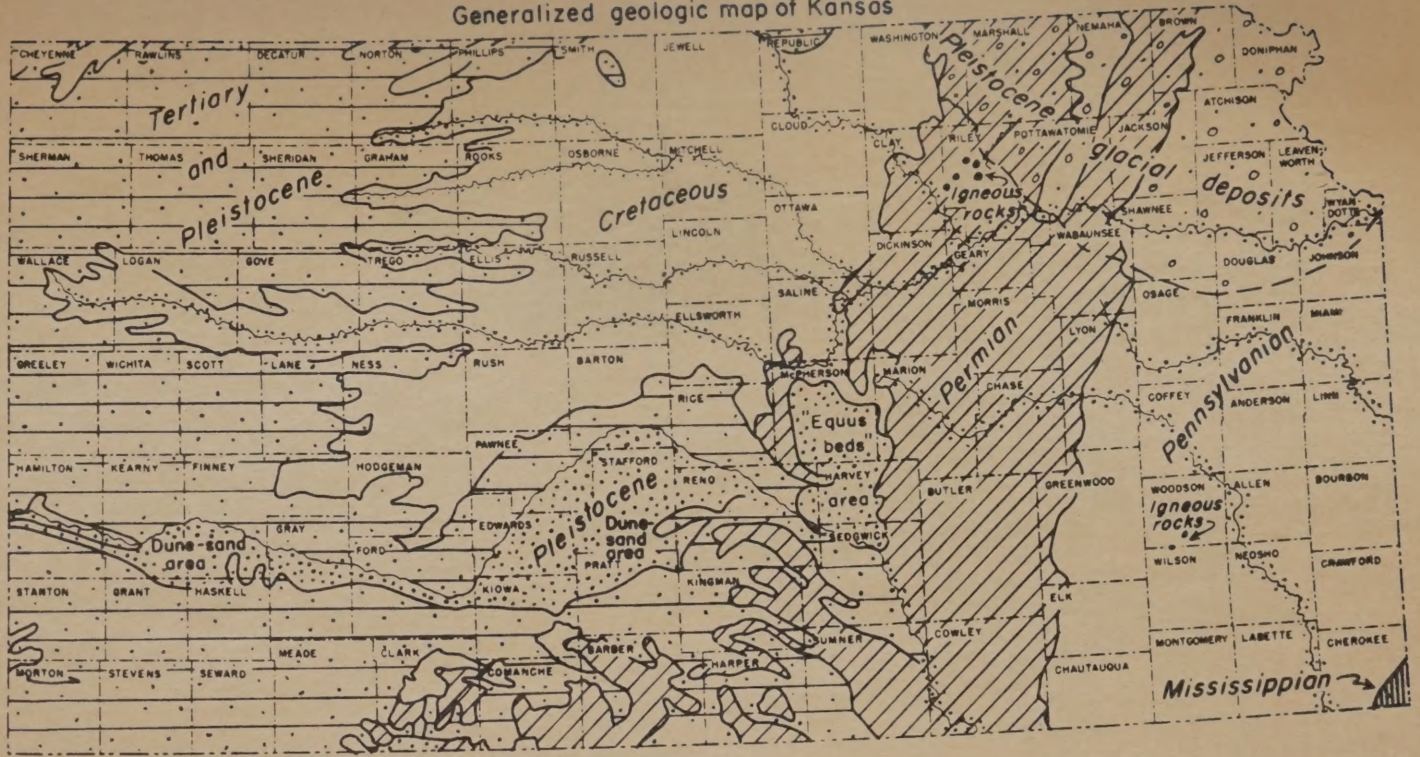
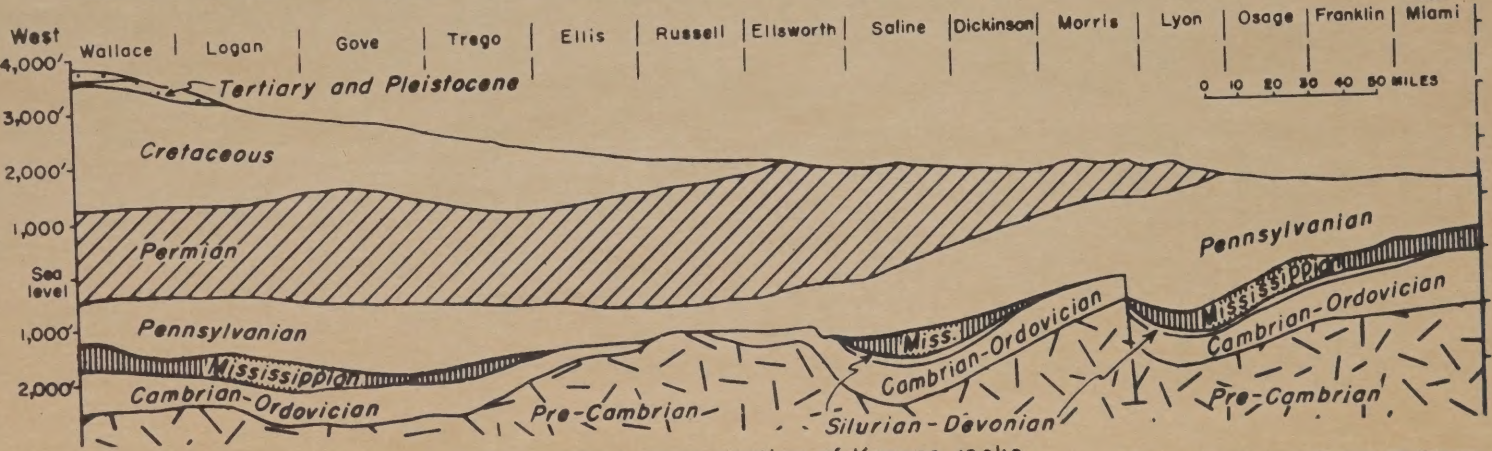
END OF TRIP



Generalized geologic map of Kansas



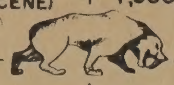
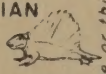
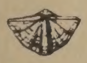
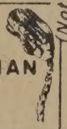
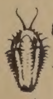
Pleistocene deposits, including present soils, cover most of Kansas



Generalized cross section of Kansas rocks

—State Geological Survey of Kansas

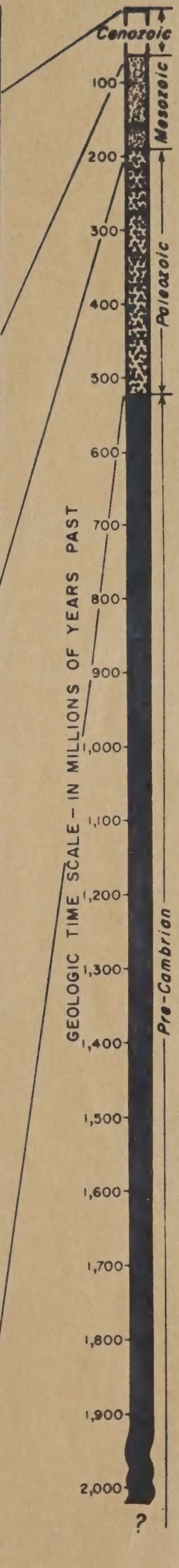
# GEOLOGIC TIMETABLE AND KANSAS ROCK CHART

| ERAS | PERIODS | ESTIMATED LENGTH IN YEARS* | TYPE OF ROCK IN KANSAS | PRINCIPAL MINERAL RESOURCES |
|---|---|---|---|---|
| CENOZOIC | QUATERNARY (PLEISTOCENE)  | 1,000,000 | *Glacial drift; river silt, sand, and gravel; dune sand; wind-blown silt (loess); volcanic ash.* | Water, agricultural soils, sand and gravel, volcanic ash. |
| | TERTIARY | 59,000,000 | *River silt, sand, and gravel; fresh-water limestone; volcanic ash; bentonite; diatomaceous marl; opaline sandstone.* | Water, sand and gravel, volcanic ash, diatomaceous marl. |
| MESOZOIC | CRETACEOUS | 70,000,000 | *Chalk, chalky shale, dark shale, vari-colored clay, sandstone, conglomerate Outcropping igneous rock.* | Ceramic materials; building stone, concrete aggregate, and other construction rock; water. |
| | JURASSIC | 25,000,000 | *Sandstones and shales, chiefly subsurface.* | |
| | TRIASSIC | 30,000,000 | | |
| PALEOZOIC | PERMIAN  | 25,000,000 | *Limestone; shale; evaporites (salt, gypsum, anhydrite); red sandstone and siltstone; chert; some dolomite.* | Natural gas; salt; gypsum; building stone, concrete aggregate, and other construction materials; water. |
| | PENNSYLVANIAN  | 25,000,000 | *Alternating marine and non-marine shale, limestone, and sandstone; coal; chert.* | Oil, coal, limestone and shale for cement manufacture, ceramic materials, construction rock, agricultural lime, gas, water. |
| | MISSISSIPPIAN  | 30,000,000 | *Mostly limestone, predominantly cherty.* | Oil, zinc, lead, gas, chat and other construction materials. |
| | DEVONIAN | 55,000,000 | *Subsurface only. Limestone, black shale.* | Oil |
| | SILURIAN | 40,000,000 | *Subsurface only. Limestone.* | Oil |
| | ORDOVICIAN  | 80,000,000 | *Subsurface only. Limestone, dolomite, sandstone, shale.* | Oil, gas, water. |
| | CAMBRIAN | 80,000,000 | *Subsurface only. Dolomite, sandstone.* | Oil |
| PRE-CAMBRIAN | (Including PROTEROZOIC and ARCHEOZOIC ERAS) | 1,600,000,000 + | *Subsurface only. Granite, other igneous rocks, and metamorphic rocks.* | Oil and gas. |

*(Not scaled for geologic time or thickness of deposits)*

*Committee on Measurement of Geologic Time, National Research Council

*State Geological Survey of Kansas*



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